

Appln No. 10/657,836
Amdt date June 2, 2004
Reply to Office action of March 22, 2004

REMARKS/ARGUMENTS

Claims 1, 2, 4-6, 8, 10-13, 15-19, 21-25 and 27-29 are in the present application, of which claims 1, 18, 19 and 25 are independent. Claims 1, 2, 4-6, 8, 10, 11, 13, 18, 19, 21, 23, 25, 28 and 29 have been amended herein. Claims 3, 7, 9, 14, 20 and 26 have been canceled without prejudice. Applicants respectfully request reconsideration and allowance of claims 1, 2, 4-6, 8, 10-13, 15-19, 21-25 and 27-29.

I. Objection to the Drawings

The drawings have been objected to because labels and numerals are handwritten. Applicants are submitting herewith a set of proposed replacement drawing sheets for FIGs. 1-5. There are no substantive changes to the drawings. Applicants request that the proposed drawings be accepted and the objection to the drawings be withdrawn.

II. Rejection of Claims 1-3, 5-6, 8-10, 14, 17-19 and 25-26 under 35 U.S.C. § 102(e)

Claims 1-3, 5-6, 8-10, 14, 17-19 and 25-26 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,642,068 ("Hayes et al."). Since claims 3, 9, 14 and 26 have been canceled herein, their rejection is now moot.

Of the rejected claims, Claim 1 has been amended to recite, "[a]n apparatus comprising an optical fiber, a photodetector disposed adjacent said fiber, and an optical thick film disposed on said photodetector and having a refractive index between a

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first refractive index of air and a second refractive index of material for an exposed surface of said photodetector, wherein said optical fiber has a smooth light emitting surface region and said optical thick film extends between said smooth light emitting surface region and the exposed surface of said photodetector." (Emphasis Added)

In the Office Action, the Examiner admits that "Hayes et al. discloses an optical fiber with a smooth face optically coupled to a photodetector and thick film, but fails to explicitly disclose said film extending continuously between said face and said photodetector." However, the Examiner further states that "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to have a said film extending continuously between said face and said photodetector . . . "

Applicants traverse this statement by the Examiner because Hayes et al. teaches using a microlens (26) formed using microlens material in the optical path. In fact, FIGs. 1a and 1b show bending of the optical ray while passing through the microlens. Applicants do not believe that such use of a microlens in the optical path is consistent with placing the optical thick film in an abutting relationship with both the optical fiber and the photodetector. Therefore, applicants submit that such use of the microlens clearly teaches away from "said optical thick film extends between said smooth light emitting surface region and the exposed surface of said photodetector."

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In view of the above, applicants request that the rejection of claim 1 be withdrawn and that it be allowed. Since claims 2, 5, 6, 8, 10 and 17 depend from claim 1, they include all the terms and limitations of claim 1 in addition to other limitations, which together further patentably distinguish them over the cited references. Therefore, applicants request that the rejection of claims 2, 5, 6, 8, 10 and 17 be withdrawn and that they be allowed.

Further, in the Office Action, the Examiner states that "[i]t is widely known in the art of optical coupling to have a said film extending continuously between said face and said photodetector in order to eliminate coupling errors due to airspace." Applicants request that the Examiner provide a reference that discloses that optical thick film extends between said face and said photodetector in compliance with MPEP § 2144.03 if the rejection is to be maintained. Applicants submit that any such reference should not preclude or teach away from using a smooth light emitting surface region as the face abutting the optical thick film.

Claim 18 recites, "[a]n apparatus comprising an optical fiber having a smooth end face, a photodetector disposed adjacent said fiber, and an optical thick film formed on said photodetector and extending between the photodetector and the smooth end face of the optical fiber, said optical thick film increasing an amount of light coupled from said optical fiber to said photodetector when light propagates in said optical fiber."
(Emphasis Added)

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As discussed in reference to claim 1 above, since Hayes et al. teaches away from such an apparatus, applicants request that the rejection of claim 18 be withdrawn and that it be allowed.

Claim 19 recites, "[a]n apparatus comprising an optical fiber having a smooth light emitting surface region, a photodetector adjacent said optical fiber, and an optical thick film coating extending from said photodetector to said smooth light emitting surface region. (Emphasis Added)

As discussed in reference to claim 1 above, since Hayes et al. teaches away from such an apparatus, applicants request that the rejection of claim 19 be withdrawn and that it be allowed.

Claim 25 recites, "[a] method for increasing optical coupling efficiency between an optical fiber and a photodetector, comprising: providing an optical fiber having a smooth light emitting surface region and a photodetector; optically coupling the smooth light emitting surface region of said optical fiber to said photodetector; and disposing a coating on said photodetector such that the coating extends from the photodetector to the smooth light emitting surface region, said coating having a coating refractive index between a first refractive index of air and a second refractive index of material for a surface of said photodetector upon which said coating is disposed" (Emphasis Added)

For a reason similar to that presented in reference to claim 1 above, since Hayes et al. teaches away from such a method, applicants request that the rejection of claim 25 be withdrawn and that it be allowed.

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III. Rejection of Claims 4, 7, 11-13, 15, 16, 20-24 and 27-29
under 35 U.S.C. § 103(a)

Claim 4 has been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hayes et al. as applied to claim 1 above, and further in view of applicants' disclosure of prior art. Since claim 4 as amended depends from claim 1, it incorporates all the terms and limitations of claim 1 in addition to other limitations, which together further patentably distinguish claim 4 over the cited references. Therefore, applicants request that the rejection of claim 4 be withdrawn and that it be allowed.

Claims 7, 20 and 23 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hayes et al. as applied to claims 1 and 19 above, and further in view of alleged common knowledge in the art. As claims 7 and 20 have been canceled herein, applicants submit that the rejection of claims 7 and 20 is now moot. Since claim 23 depends from claim 19, it incorporates all the terms and limitations of claim 19 in addition to other limitations, which together further patentably distinguish claim 19 over the cited references. Therefore, applicants request that the rejection of claim 23 be withdrawn and that it be allowed.

Claims 11 and 21 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hayes et al. as applied to claims 1 and 19 above, and further in view of U.S. Patent Publication No. 2004/0017977 ("Lam et al."). Since claims 11 and 21, as amended herein, depend from claims 1 and 19, respectively, they incorporate all the terms and limitations

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of the respective base claim in addition to other limitations, which together further patentably distinguish them over the cited references. Therefore, applicants request that the rejection of claim 11 and 21 be withdrawn and that they be allowed.

Claims 12, 24 and 27 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hayes et al. applied to claims 1, 19 and 25 above, and further in view of preferred materials. Since claims 12, 24 and 27 depend from claims 1, 19 and 25, respectively, they incorporate all the terms and limitations of the respective base claim in addition to other limitations, which together further patentably distinguish them over the cited references. Therefore, applicants request that the rejection of claims 12 24 and 27 be withdrawn and that they be allowed.

Claims 13, 15 and 16 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hayes et al. as applied to claim 1 above, and further in view of an optimal range. Since claims 13, 15 and 16 depend from claim 1, they each incorporate all the terms and limitations of claim 1 in addition to other limitations, which together further patentably distinguish them over the cited references. Therefore, applicants request that the rejection of claims 13, 15 and 16 be withdrawn and that they be allowed.

Claims 22, 28 and 29 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hayes et al. as applied to claims 19 and 25 above, and further in view of a preferred configuration. Since claims 22, 28 and 29 depend from

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claims 19 and 25, respectively, they incorporate all the terms and limitations of the respective base claim, in addition to other limitations, which together further patentably distinguish claims 22, 28 and 29 over the cited references. Therefore, applicants request that the rejection of claims 22, 28 and 29 be withdrawn and that they be allowed.

In view of the foregoing amendments and remarks, applicants request a early issuance of a patent with claims 1, 2, 4-6, 8, 10-13, 15-19, 21-25 and 27-29. If there are any remaining issues that can be addressed over the telephone, the Examiner is invited to call applicants' attorney at the number listed below.

Respectfully submitted,
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